Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services

STATEMENT OF BASIS

Westlake Vinyls Company, L.P.
Chlor-Alkali Plant
Geismar, Ascension Parish, Louisiana
Agency Interest Number: 1138
Activity Number: PER20070002
Permit 3057-V0

I. APPLICANT:

Company:
Westlake Vinyls Company, L.Pl.
P.O. Box 228, Geismar, LA 70734-0228

Facility:
Chlor-Alkali Plant
36045 Highway 30, Geismar, Ascension Parish, Louisiana
Approximate UTM coordinates are 667.460 kilometers East and 3358.210 kilometers North, Zone 15

II. FACILITY AND CURRENT PERMIT STATUS:

Westlake Vinyls Company LP (WVC) proposes to construct the Chlor-Alkali Plant at the Westlake Vinyl Company Complex in Geismar, Louisiana. The property is located northeast of the Illinois Central Gulf Railroad on LA Highway 73 immediately east of the junction with LA Highway 30. The primary components of the proposed Chlor-Alkali Plant include a chlorine manufacturing and recovery unit, an HCl synthesis unit and a caustic recovery unit.

This is the initial Part 70 operating permit for the facility.

Several Part 70 permits addressing the facility have already been issued. These permits include:

Permit #	Units or Sources	Date Issued
2874-V1	PVC Plant	9/11/2006
2872-V0	Biological Treatment Plant	7/26/2005
1248-V1	VCM-E Plant	10/21/2005
2843-V0	EDC Marine Loading Operations	8/6/2003
2699-V3	Cogen Facility	7/28/2005

III. PROPOSED PERMIT / PROJECT INFORMATION:

Proposed Permit

A permit application and Emission Inventory Questionnaire were submitted by Westlake Vinyls Company, LP dated April 4, 2007 requesting a Part 70 operating permit. Additional information dated April 12, 2007 and April 19, 2007 was also received.

A notice requesting public comment on the permit was published in *The Advocate*, Baton Rouge, on **<date>**, 2007; and in the Gonzales Weekly, Gonzales, on **<date>**, 2007. A copy of the public notice was mailed to concerned citizens listed in the Office of Environmental Services Public Notice Mailing List on **<date>**. The draft permit was also submitted to US EPA Region VI on <**date**>. All comments will be considered prior to the final permit decision.

Project Description

The WVC Chlor-Alkali Plant will utilize membrane cell technology for production of chlorine by the electrolytic process. In the basic electrolytic process, a salt solution (rock salt or brine) is electrolyzed by the action of direct current that converts chloride ions into elemental chlorine. Chlorine is produced at the anode (+) and the caustic and hydrogen are produced at the cathode (-). The process reaction is:

$$2NaCl + 2H_2O \rightarrow Cl_2 + H_2 + 2NaOH$$

The membrane cell technology, which uses a set of insoluble organic polymer membranes for product separation, is the most advanced and environmentally safe of the three (3) commercially used chlorine production processes. Diaphragm cell and mercury cell are the other two (2) commercially used processes; these processes use asbestos and mercury, respectively, in the product separation step. Asbestos and mercury are Louisiana Toxic Air Pollutants (TAPs), with potentially significant environmental and health impacts.

WVC will purchase rock salt or brine as raw material. The Chlor-Alkali Plant will use salt brine from nearby brine wells or bring rock salt in by barge or railcar to produce chlorine. The rock salt or brine will then be precipitated, filtered, and passed through an ion exchange unit to remove impurities. A direct electric current will be applied. Between the anode and cathode is an insoluble organic polymer membrane to prevent the chlorine (anode) from reacting with the caustic soda (cathode). The chlorine will then be cooled, dried, compressed, and liquefied. Products from the Chlor-Alkali Plant will include chlorine, 50% caustic soda, hydrogen gas, and hydrogen chloride in the form of muriatic acid. The plant is intended primarily to provide chlorine feed to the on-site ethylene dichloride (EDC) process to reduce dependence on purchased chlorine. Chlorine which may be available for sale as product will be stored in pressure vessels and transported via pipeline to units in the complex area. Hydrogen gas produced in the unit may be used as fuel for on-site combustion units or will be transported offsite as product, and HCl will be utilized in the electrolysis and brine treatment process. Caustic soda produced in the plant will be routed to an evaporator to increase the concentration from 32% to 50%. The caustic soda will then be used on site or sent offsite via barge, railcar, trucks and/or pipeline. Chlorine, hydrogen, and caustic soda may also be transported offsite as product.

Permitted Air Emissions

The estimated emissions in tons per year for this permit renewal/modification are as follows:

Pollutant	Proposed
PM_{10}	14.46
SO_2	0.39
NO_X	19.71
CO	54.11
VOC *	3.55

*VOC LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):

Pollutant	Proposed
1,4-Dichlorobenzene	<0.01
Benzene	<0.01
Carbon tetrachloride	<0.01
Formaldehyde	0.05
n-Hexane	1.16
Naphthalene	<0.01

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*VOC LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):	
Pollutant	Proposed
Toluene	<0.01
Total	1.21

Other:	Proposed
Chlorine	0.13
Hydrochloric acid	0.09
Sulfuric acid	<0.01
Total Suspended Particles	1.12
Total	1.34

Prevention of Significant Deterioration Applicability

This permit was reviewed for compliance with 40 CFR 70, the Louisiana Air Quality Regulations, New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP). Prevention of Significant Deterioration (PSD) and Non-Attainment New Source Review (NNSR) do (not) apply.

The facility is a minor source of toxic air pollutants (TAPs) pursuant to LAC 33:III.Chapter 51 and is a part of WVC which is a major source of TAPs.

Non-attainment New Source Review (NNSR)

A New Source Review (NSR) applicability analysis was conducted for all NSR regulated pollutants. The proposed WVC Chlor-Alkali Plant is located in Ascension Parish, which is designated as a moderate nonattainment area for ozone and as attainment for all other criteria pollutants. Therefore, Non-attainment New Source Review (NNSR) applicability is considered for NO_x and VOC emission increases. PSD applicability is considered for PM/PM_{10} (particulate matter/particulate matter of less than 10 micron aerodynamic diameter), SO_2, NO_x (to address the NAAQS for NO_x), and CO emission increases. There are no emissions of lead, fluorides, or TRS/H_2S associated with this project. Sulfuric acid emissions are negligible.

The pollutant emission increases that will result from the project for the sources associated with the proposed Chlor-Alkali Plant are included in the following table.

Pollutant	Emission Rate Increase (tons/yr)	PSD Threshold (tons/yr)	NNSR Threshold (tons/yr)	Netting Analysis Required
PM/PM_{10}	14.52	25/15	N/A	No
SO2	0.39	40	N/A	No
NO_x	19.71	40	40 (25)	No
CO	54.11	100	N/A	No
VOC	3.56	N/A	40 (25)	No

Because the construction and operation of the proposed Chlor-Alkali Plant will not increase the production capacity of any downstream units, nor will it result in a debottleneck for any processes at the facility, there are no upstream or downstream affected sources. Project emissions are limited to the sources associated with the proposed Chlor-Alkali Plant. The proposed Chlor-Alkali Plant boiler (EPN 5-07) will be equipped with ultra low NO_x burners (ULNB).

MACT requirements

The WVC facility is a major source of Louisiana TAPs (LTAPs) as defined in LAC 33:III.Chapter 51 and currently complies with MACT. The proposed facility will comply with all applicable provisions of the TAPs program. The proposed Chlor-Alkali Plant boiler emits Class I and II LTAPs, derived from the combustion of natural gas, which is considered a Group 1 virgin fossil fuel. Therefore, per LAC 33:III.5105.B.3.a, this source is exempt from the requirements of Chapter 51.

Air Modeling Analysis

Not Applicable.

General Condition XVII Activities

See permit item VIII.

Insignificant Activities

See permit item IX.

IV. Permit Shields

None.

V. Periodic Monitoring

The Monitoring, Reporting, and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are provided in the Facility Specific Requirements Section of the proposed permit.

VI. Applicability and Exemptions of Selected Subject Items

A complete listing of non-applicable and exempted state and federal air quality requirements for each subject item is included in the proposed Part 70 permit, Table 2. Applicable requirements are included in the specific requirements.

VII. Streamlined Requirements

Not Applicable.

VIII. Glossary

Maximum Achievable Control Technology (MACT) - The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

Nitrogen Oxides (NO_x) - Compounds whose molecules consists of nitrogen and oxygen.

Part 70 Operating Permit- Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit: $\geq$ 10 tons per year of any toxic air pollutant; $\geq$ 25 tons of total toxic air pollutants; and $\geq$ 100 tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

PM_{10}- Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

Potential to Emit (PTE) - The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) – A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air

Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

Sulfur Dioxide (SO_2) – An oxide of sulphur.

Title V Permit – See Part 70 Operating Permit.

Volatile Organic Compound (VOC) - Any organic compound which participates in atmospheric photochemical reactions; that is, any organic compound other than those which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.